Exhibit 5
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Quality Revenue Optimizations overview

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June 2020

Dynamic Revenue Sharing

Reserve Pricing Optimizations

Automatic Floor Lowering and Control (AFLAC):
    Target CPM:
    Managed Reserves:

Dynamic Revenue Sharing

Background: the minimum CPM floor sent in an ad request sent to buyers represents the price buyers must clear to win the auction. A publisher sets the floor in the UI (through unified pricing rules) that represents the lowest amount they are willing to be paid for the impression. Respecting the publisher payout must exceed the floor they set, we apply a revenue share on top of the floor to make sure that we charge buyers enough to pay both Google and the publisher's minimum floor. The effective price a buyer must beat is (publisher set floor + rev share). Dynamic revenue share lowers the minimum CPM floor a buyer must beat by lowering the revenue share on some queries. It then makes up for this lower revenue share on queries where the winning bid is much higher than the floor, keeping the average revenue share for a publisher constant across queries but generating more total impressions and revenue. We had this feature in a second price auction (DRS in 2P: Truthful DRS Auction Walkthrough) but since we switched to a first price auction in September 2019 we had to rebuild this optimization. DRS was turned off when we switched to first price and is not currently available. DRS a network level toggle that publishers are enabled into by default but they may opt out of in settings.
Current project: ████████ Plan to launch to experiment in late June, expect positive results. We plan to use the existing comms doc with updates ████████████. Phase 1 will be AdManager only and could expand to AdMob in the future.
Key contacts: ███@ on DRX quality, ███@ on Omega team (████████)

Reserve Pricing Optimizations

Background: Publishers set a minimum floor price with Unified Pricing Rules. Some buyers are sensitive to the minimum floor and will increase their bids to clear a floor. We try to model what buyers do to predict when they will bid higher because of floors and raise floors on those

queries. This optimization is at a per query level: two queries that are part of the same pricing rule may have different floors.

We had this feature in a second price auction (RPO in 2P:) but since we switched to a first price auction in September 2019 we had to rebuild this optimization. RPO was turned off when we switched to first price and is not currently available. RPO is a network level feature. The feature is called Optimized Pricing externally (comms doc)

Current project: Current project is called Venusaur, an extension of Ivysaur (analysis) which was itself an extension of Bulbasaur (prior analysis). Venusaur will compute the reserves more frequently and try to model buyer specific attributes. This project is unique because it requires a sophisticated experimentation setup. This project is sensitive and we are careful not to share too many details with the buyside.

Key contacts: ██████████████████, on DRX quality, ██████████████ on Omega

Automated Floor Analysis and Control (AFLAC):

Target CPM:

Background: When setting up unified pricing rules, publishers can choose to have a fixed floor or a target floor. A target floor means that we will let some queries clear below the floor, but the average CPM of the rule will meet the target. Enabling target floors allows for more impressions and more revenue. Target CPM v2 refers to the first price version of tCPM which was launched in Q4 2019. The original design for second price is PRD: Target CPM floors.

Bid insights cards have revealed the bid distribution to publishers who now can visualize tCPM by seeing some queries clear below their floor. This has caused some concern but has also given us an opportunity to show how much revenue tCPM is making (the CPM x impressions of all queries below the floor).

Target CPM is selected by default in UPRs but publishers can easily opt out. It is an opt in at the rule level. Comms doc

We have an opportunity which suggests publishers opt in to target CPM

Current projects: Nothing major is planned but we are working on updates to make the rule hit the target more frequently. ████████ are doing analysis on this now.

Key contacts: ██████ is the main engineer on the project, supported by ██████, ████████████

Managed Reserves:

Background: Managed reserves lets Google completely override any publisher set floors and set the best price we can. Because we are lowering floors below the publisher set price, it requires a manual opt in similar to tCPM. We never fully launched Managed Reserves in second price due to a change in focus to the first price migration; it never made it past beta stage. (Second price MR: Target CPM / Managed Reserves Design). Externally, the name optimized pricing referred to RPO and Managed Reserves because it was hard to communicate the

difference between the two. The Managed Reserves aspect was just referred to as "allowing optimized pricing to lower your floors" and required an opt-in while the RPO aspect was on by default. In this version, MR was a network wide setting. Publishers were opposed to handing over all of their floors to Google to manage and we have moved away from this decision in 1P.

Key contacts: ██████████ is the main engineer on the project, supported by ██████████ ██████████ on DRX quality and ██████████████ on Omega

Other links

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Quality Drive